

What is claimed is:

1 1. A system for allocating resources to enable provision of different
2 levels of service for different users of a network having nodes at which routers are placed
3 to direct information along various paths, the system comprising:

4 a first allocation of resources at a node, the first allocation being made by a
5 first management system external to the node that manages at least part of the network;
6 and

7 a second allocation of resources at the node, the second allocation being
8 made by a second management system having a limited capability compared to the first
9 management system and usable by the node in accordance with priorities determined at
10 the node.

1 2. A system as in claim 1 further comprising a flow control table at
2 the node operating under control of the second management system for storing entries
3 which each include:

4 source addresses representative of at least one source of
5 information arriving at the input port;

6 destination addresses representative of at least one of the
7 destinations to which the arriving information is to be sent from the output
8 port;

9 priority information for each address consisting of a
10 capability of at least two different priorities for controlling the forwarding
11 of information arriving from the source to the destination; and
12 wherein with the priority information is changeable at the node without
13 reference to the first management system.

1 3. A router system as in claim 2 wherein the router system includes a
2 router for switching information and a controller coupled to the router for storing the flow
3 control table and controlling the router in response thereto.

1 4. A router system as in claim 3 wherein the priority information
2 includes default priority information used to control information which does not
3 otherwise have an entry in the flow control table.

1 5. A system as in claim 3 wherein the router has a capacity and not all
2 of the capability of the router is allocated by the controller.

1 6. A system as in claim 5 wherein the unallocated portion of the
2 capacity is reserved for use as a virtual private network.

1 7. A system as in claim 6 wherein the controller manages the flow
2 control table using two application program interfaces.

1 8. A system as in claim 7 wherein the applications program interfaces
2 include a first one for managing default priority information for a longer term usage, and
3 a second one for managing the remaining entries of the flow control table for a shorter
4 term usage.

1 9. A system as in claim 8 wherein the first and second applications
2 program interfaces are under control of a network management system.

1 10. A system as in claim 9 wherein the network management system is
2 controlled by a network service provider.

1 11. A system as in claim 9 wherein the first applications program
2 interface is controlled by a network service provider and the second applications program
3 interface is controlled by a provider of the source of information.

1 12. A system as in claim 11 wherein the controller manages the flow
2 control table using a single applications program interface.

1 13. A system as in claim 12 wherein the applications program interface
2 manages default priority information for longer term usage and manages the remaining
3 entries of the flow control table for shorter term usage.

1 14. In a system for dynamically allocating resources to enable
2 provision of different levels of service for different users of a network having nodes at
3 which routers are placed to direct information along various paths, a method comprising:
4 allocating a first level of service from a remote source;

allocating a second level of service from a local source, the second level of
 service using resources available from the first level of service;
 receiving information at an input port from a source;
 storing in a flow control table entries which include source addresses
 representative of a source of information arriving at the input port, destination addresses
 representative of a destination to which the arriving information is to be sent, and priority
 information for each source address, which priority information includes at least two
 different priorities; and
 forwarding information arriving from the source to the destination address
 with a priority based upon the priority information in the flow control table.

15. A method as in claim 14 wherein the method further comprises
 using a controller coupled to the router to store the flow control table and controlling the
 router in response thereto.

16. A method as in claim 15 wherein the method further comprises
 using default priority information to control arriving information which does not
 otherwise have an entry in the flow control table.

17. A method as in claim 16 wherein the router has a capacity; and the
 method comprises using the controller to allocate less than all of the capacity of the
 router.

18. A method as in claim 17 wherein the method further comprises
 reserving unallocated capacity of the router for use as a virtual private network.

19. A method as in claim 18 wherein the method further comprises
 using applications program interfaces to allow the controller to manage the flow control
 table.

20. A method as in claim 19 wherein method further comprises using a
 first applications program interface to manage default priority information for longer term
 usage, and using a second applications program interface to manage remaining entries of
 the flow control table for shorter term usage.

1 21. A method as in claim 20 further comprising using a network
2 management system to control the first and second applications program interfaces.

1 22. A method as in claim 21 further comprising using a network
2 service provider to control the network management system.

1 23. A method as in claim 22 further comprising using a network
2 service provider to control the first applications program interface and using a provider of
3 the source of information to control the second applications program interface.

1 24. A method as in claim 23 further comprising using a single
2 applications program interface to manage the flow control table

1 25. A method as in claim 24 further comprising using the applications
2 program interface to manages default priority information for longer term usage and using
3 the remaining entries of the flow control table to manage for shorter term usage.